

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/004739

International filing date (day/month/year)
10.03.2005

Priority date (day/month/year)
11.03.2004

International Patent Classification (IPC) or both national classification and IPC
F01N9/00, F01N3/025

Applicant
TOYOTA JIDOSHA KABUSHIKI KAISHA

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
 INTERNATIONAL SEARCHING AUTHORITY**

International application No.
 PCT/JP2005/004739

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2005/004739

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	1-10
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/JP2005/004739

Re Item V.

- 1 Reference is made to the following documents:
D1 : PATENT ABSTRACTS OF JAPAN vol. 008, no. 094 (M-293), 28
April 1984 (1984-04-28) & JP 59 007720 A (MITSUBISHI JIDOSHA KOGYO
KK), 14 January 1984 (1984-01-14)
- 2 Document D1, which is considered to represent the most relevant state of the art,
discloses (the references in parentheses applying to this document):
a method of operating an exhaust purifying system for regeneration of a
particle filter by injecting unburned fuel in the exhaust line upstream of the
filter for increasing the temperature and burning the particles when the
filter is loaded. Additionally, a timer automatically operates a recombustion
device for a certain time after stopping the engine.

From this, the subject-matter of independent claim 1 differs in that:
in the specific case that the engine would be stopped during the regeneration
process, the regeneration process is reactivated when the engine is restarted
even if the filter is not fully loaded anymore.

- 2.1 The subject-matter of claims 1 and 7 is therefore novel (Article 33(2) PCT)
- 2.2 The problem to be solved by the present invention may be regarded as ensuring the
complete regeneration of the filter for vehicles that have to stop often their engine, for
example stop-and-go vehicles.
None of the cited documents (see search report) show a similar solution to
solve the problem raised by the application. Therefore the solution to this
problem proposed in claims 1 and 7 of the present application is considered as
involving an inventive step (Article 33(3) PCT).
- 2.3 Claims 2-6 and 8-10 are dependent on claims 1 and 7 and as such also meet the
requirements of the PCT with respect to novelty and inventive step.

Re Item VIII.

3. The features in the apparatus claims 1-6 relate to a method of using the apparatus or a method for purifying exhaust gas rather than clearly defining the apparatus in terms of its technical features. The intended limitations are therefore not clear from this claims, contrary to the requirements of Article 6 PCT. Additionally, the set of claims as a whole is not concise, because the features of the claims 1-6 are repeated in the claims 7-10.
4. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.